IN THE CLAIMS:

1. A gamma camera for detecting gamma photon emissions and generating electrical energy comprising:

an array of photodetectors and associated circuitry for detecting and converting light energy to electrical energy; and

a scintillation crystal positioned in proximity to said array of photodetectors for detecting gamma photon emissions and generating said light energy, wherein at least one portion of at least one surface of said scintillation crystal yields a substantially different light response function for said generated light energy than at least another portion of said scintillation crystal.

2. The gamma camera according to Claim 1, wherein said at least one portion of said scintillation crystal includes a plurality of uniformly polished areas, and wherein each of said plurality of uniformly polished areas is substantially aligned with a respective central axis of a photodetector of said array of photodetectors.

3. The gamma camera according to Claim 1, wherein said at least one portion of said scintillation crystal includes a plurality of uniformly polished areas, and wherein each of said plurality of uniformly polished areas is positioned such that it is not substantially aligned with a respective central axis of a photodetector of said array of photodetectors.

4. The gamma camera according to Claim 1, wherein said at least one portion of said scintillation crystal includes a first polished area of said scintillation crystal and said at least another portion of said scintillation crystal includes a second polished area of said scintillation crystal, and wherein said first and said second areas are polished differently to yield different light response functions for said generated light energy.

5. The gamma camera according to Claim 1, further comprising a collimator for intercepting and eliminating gamma photon emissions that are not traveling in an accepted direction.

6. The gamma camera according to Claim 1, wherein said scintillation crystal is sodium iodide-thallium activated (NaI(Tl)) crystal.

7. The gamma camera according to Claim 1, further comprising a lead shield surrounding said scintillation crystal, said array of photodetectors and said associated circuitry.

8. The gamma camera according to Claim 1, further comprising a glass positioned between said scintillation crystal and said array of photodetectors.

9. An improved scintillation crystal for a gamma camera of the type comprising an array of photodetectors and associated circuitry for detecting and converting light energy to electrical energy, a collimator for directing

gamma photon emissions towards said scintillation crystal, and a lead shield surrounding said scintillation crystal, said array of photodetectors and said associated circuitry, the improved scintillation crystal comprising:

at least one portion yielding a different light response function for light energy generated by said scintillation crystal than at least another portion of said scintillation crystal.

10. The improved scintillation crystal according to Claim 9, wherein said at least one portion of said scintillation crystal includes a plurality of uniformly polished areas, and wherein each of said plurality of uniformly polished areas is substantially aligned with a respective central axis of a photodetector of said array of photodetectors.

11. The improved scintillation crystal according to Claim 9, wherein said at least one portion of said scintillation crystal includes a plurality of uniformly polished areas, and wherein each of said plurality of uniformly polished areas is positioned such that it is not substantially aligned with a respective central axis of a photodetector of said array of photodetectors.

12. The improved scintillation crystal according to Claim 9, wherein said at least one portion of said scintillation crystal includes a first polished area of said scintillation crystal and said at least another portion of said scintillation crystal includes a second polished area of said scintillation crystal, and wherein said first and said second polished areas are polished differently to yield different light response functions for said generated light energy.

13. The improved scintillation crystal according to Claim 9, wherein said scintillation crystal is sodium iodide-thallium activated (NaI(Tl)) crystal.

14. A method for manufacturing a gamma camera comprising the steps of:

providing a scintillation crystal wherein at least one portion of said scintillation crystal yields a different light response function for light energy generated by said scintillation crystal than at least another portion of said scintillation crystal;

providing an array of photodetectors having associated circuitry; and

positioning said scintillation crystal in proximity to said array of photodetectors.

15. The method according to Claim 14, further comprising the step of surrounding said scintillation crystal, said array of photodetectors and associated circuitry with a lead shield.

16. The method according to Claim 14, further comprising the step of providing a collimator in proximity to said scintillation crystal and opposite said array of photodetectors.

17. The method according to Claim 14, wherein the step of providing a scintillation crystal comprises the step of polishing said at least one portion of said scintillation crystal for yielding said different light response

function for light energy generated by said scintillation crystal than said at least another portion of said scintillation crystal.

18. The method according to Claim 17, wherein said at least one polished portion of said scintillation crystal includes a plurality of uniformly polished areas, and wherein each of said plurality of uniformly polished areas is substantially aligned with a respective central axis of a photodetector of said array of photodetectors.

19. The method according to Claim 17, wherein said at least one polished portion of said scintillation crystal includes a plurality of uniformly polished areas, and wherein each of said plurality of uniformly polished areas is positioned such that it is not substantially aligned with a respective central axis of a photodetector of said array of photodetectors.

20. The method according to Claim 17, wherein said at least one portion of said scintillation crystal includes a first polished area of said scintillation crystal and said at least another portion of said scintillation crystal includes a second polished area of said scintillation crystal, wherein said first and said second polished areas are polished differently to yield different light response functions for said generated light energy.